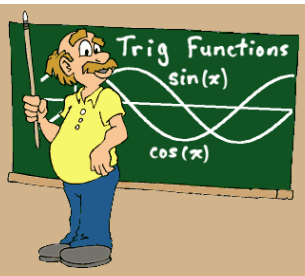
Unit 3
Lesson 1
"Defining Trigonometric Ratios"

If you missed your test on Friday, you MUST come today at lunch hour. ALSO, if you wrote in the resource room and did not finish your test, you may come today ONLY at lunch hour to finish your test.

12:00 to 12:30

Introduction to Trigonometric Ratios



Vocabulary:

Trigonometry = the branch of Math concerned with the properties of triangles and the calculations based on these.

Trigonometric Functions: used to solve for unknown lengths and angles of right angled triangles. **Sine; Cosine; Tangent**

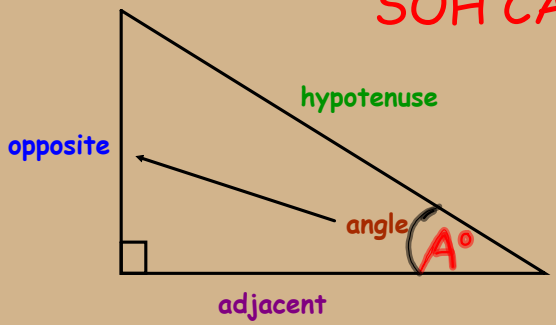
The trig ratios (sine, cosine and tangent) allow you to solve all of the parts of right angled triangles, that is, all 3 sides and all 3 angles, given 2 possible conditions:

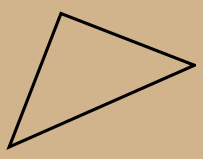
1. Given 2 sides OR
2. Given 1 side and 1 of the acute angles.

Trigonometric Functions

Primary Trig Function Name	Ratio	Abbreviation
Sine of Angle A	side opposite to angle A / hypoteneuse	Sin = O / H
Cosine of Angle A	side adjacent to angle A / hypoteneuse	Cos = A / H
Tangent of Angle A	side opposite to angle A / side adjacent to angle A	Tan = O / A

SOH CAH TOA





SOH CAH TOA

Sin θ = Opposite / Hypotenuse

Cos θ = Adjacent / Hypotenuse

Tan θ = Opposite / Adjacent

$\tan Q = \frac{O}{A}$

$\sin Q = \frac{O}{H}$ $\cos Q = \frac{A}{H}$

Finding an Unknown Angle using Trigonometric Ratios:

Use your trigonometric table to find:

- Sin 42° = 0.6691
- Cos 12° = 0.9781
- Tan 29° = 0.5543

Angle	Sin	Cos	Tan
0°	.0000	1.0000	.0000
1	.0174	.9998	.0175
2	.0349	.9994	.0349
3	.0523	.9986	.0524
4	.0698	.9976	.0699
5	.0872	.9962	.0875
6	.1045	.9945	.1051
7	.1219	.9925	.1228
8	.1392	.9903	.1405
9	.1564	.9877	.1584
10	.1736	.9848	.1763
11	.1908	.9816	.1944
12	.2079	.9781	.2126
13	.2250	.9744	.2309
14	.2419	.9703	.2493
15	.2588	.9659	.2679
16	.2756	.9613	.2867
17	.2924	.9563	.3057
18	.3090	.9511	.3249
19	.3256	.9455	.3443
20	.3420	.9397	.3640
21	.3584	.9336	.3839
22	.3746	.9272	.4040
23	.3907	.9205	.4245
24	.4067	.9135	.4452

Angle	Sin	Cos	Tan
25	.4226	.9063	.4663
26	.4384	.8988	.4877
27	.4540	.8910	.5095
28	.4695	.8829	.5317
29	.4848	.8746	.5543
30	.5000	.8660	.5774
31	.5150	.8572	.6009
32	.5299	.8480	.6249
33	.5446	.8387	.6494
34	.5592	.8290	.6745
35	.5736	.8192	.7002
36	.5878	.8090	.7265
37	.6018	.7986	.7536
38	.6157	.7880	.7813
39	.6293	.7771	.8098
40	.6428	.7660	.8391
41	.6561	.7547	.8693
42	.6691	.7431	.9004
43	.6820	.7314	.9325
44	.6947	.7193	.9657
45	.7071	.7071	1.0000

Please get a trig table handout (do not mark on this)

also, open to a new page in your notes....

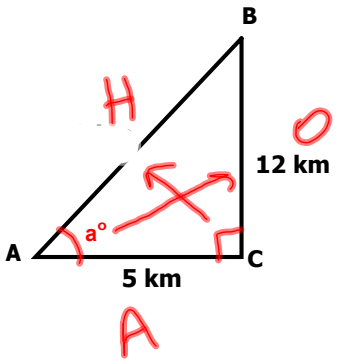
Find the angle of the following value using the trig table:

2nd F or shift

1. sin θ = 0.5878 θ = 36° $\sin^{-1}(0.5878)$
2. tan θ = 1.0000 θ = 45°
3. cos θ = 0.0872 θ = 85°
4. sin θ = 0.7771 θ = 51°
5. sin θ = 0.4695 θ = 28° ✓
6. tan θ = 0.4425 θ = 24° ✓
7. cos θ = 0.9945 θ = 6°
8. sin θ = 0.9781 θ = 78°

$\sin\theta = ?$ 0.7354

Example 1: Find the primary trigonometric ratios for angle A on $\triangle ABC$



SOH CAH TOA

$\tan\theta = \frac{O}{A}$

Step 1: Label the O, A, H

Step 2: Choose the correct trig function

Step 3: Fill in the numbers

Step 4: Solve for the unknown

$\tan\theta = \frac{O}{A}$

$\tan\theta = \frac{12}{5}$

$\tan\theta = 2.4$

Use the 2nd function button

$\tan^{-1}(2.4) = 67.4^{\circ}$

Attachments

Intro. to Trig Pizzazz.pdf